



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

in late autumn to early spring. The beginner would best not try to identify sterile specimens unless they have some striking character. If a perfect specimen cannot be identified, make careful notes and send the specimen and notes to some one who has a better knowledge of mosses.

THE CATHARINEAS.

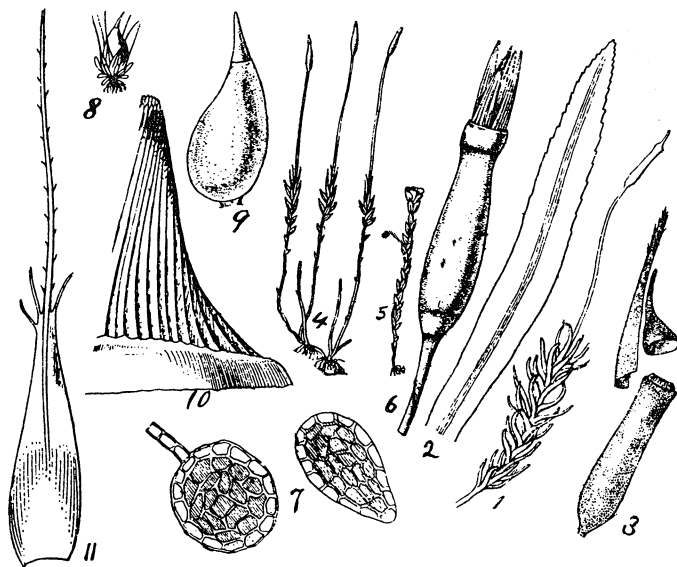
THE hair-cap mosses and the Pogonatum belong to the family Polytrichaceæ, which in some respects is the most highly developed of all the mosses. The stem has a central axis of specialized tissue that in structure and function shows a near approach to the central fibro-vascular bundle of the ferns and their allies. The most notable member of the family in point of size is the magnificent Dawsonia of Australia, which reaches a height of 14 inches and has leaves an inch or more in length. There are several other genera belonging to this family, some of which are represented in North America, but the only other genus which our readers are likely to meet with is Catharinea, which, in 1780, was named by Erhart for the Empress Catharine II. of Russia, but sixty-four years later Bruch and Schimper changed its name to Atrichum.* If our readers are troubled by the recent changes of plant names, this instance will show them the justice of restoring names long in use but arbitrarily rejected by the caprice of a prominent botanical writer.

The Catharineas will be easily recognized by reference to Figs. 1-3. They have the lamellate costa of the hair-caps and a peristome of 32 teeth, similar in all respects. The calyptra, however, has become almost bald and shows mere traces of hairs in the spine-like projections near its apex (Fig. 3). The wavy Catharinea (*C. undulata*) is one of our most common and conspicuous mosses, being abundant everywhere on moist, shady banks. The novice will find it not always easy to distinguish the narrow-leaved Catharinea (which is less frequent and the only other species likely to be met with) from the wavy Catharinea. The wavy Catharinea has the leaves rather acute, serrate to the base; upper leaf cells irregular and rounded; capsule more or less curved, frequently several together. The narrow-leaved Catharinea is more slender; leaves more obtuse, less undulate, serrate in the

*See Mrs. Britton's article in the *Observer* for May, 1894.

upper half only; upper leaf cells regularly six angled, much smaller; capsule less curved, single.

Mr. Dixon says that these two species are separated by a combination of characters, most of which may, at one time or another, be found to some extent in both species. But he adds that they can usually be readily distinguished by the lamellæ, which, in



the wavy *Catharinea*, are few, short and, when flattened out beneath a cover glass, occupy (in the upper part of the leaf) $\frac{1}{3}$ — $\frac{1}{4}$ the entire width of the leaf, while in the narrowed-leaved *Catharinea* they cover $\frac{1}{3}$ — $\frac{1}{4}$ the width of the leaf.

EXPLANATION OF PLATE.

Figs. 1-3—*Catharinea angustata*; 1, plant, natural size; 2, leaf, greatly enlarged; 3, capsule, operculum, and calyptra, enlarged. Figs. 4-7—*Georgia pellucida*; 4, plant, natural size, showing the basal branching; 5, Gemmiferous plant; 6, capsule, enlarged; 7, Gemmæ. Figs. 8-11—*Webera sessilis*; 8, plant, natural size; 9, capsule, greatly enlarged; 10, half of mouth of capsule, enlarged, showing plicate cone; 11, Perichætial leaf. [Taken by permission from Mrs. Britton's plates in the *Observer*.]

This genus was named after George III., but its name was soon after changed to *Tetraphis* by another botanist. The latter name refers to the four large strong teeth of the peristome, by which character alone the genus is readily recognized. The pellucid Georgia (*G. pellucida*, Figs. 4-7) is very abundant on moist decaying wood, but seems to flourish best on the vertical sides of old stumps. Some of the plants bear peculiar looking tufts of leaves at the summit that might easily be mistaken for the antheridial heads. The species, however, is monoicous and these heads consist of large numbers of minute bright-green bodies, called gemmæ, surrounded by modified leaves. These bodies much magnified are shown in Fig. 7. These fall off and develop into new plants. This method of reproduction is rather rare in mosses and reminds one strongly of the gemmæ of *Lycopodium* or the bulblets of *Cystopteris*.

There is another species of this genus and another genus of this family which are found in North America, but they are so rare that none of our readers are likely to meet with them.

While Georgia belongs to a different family from the hair-caps, there are certain resemblances that have led botanists to put them into one group, the Nematodonteæ or thread-toothed mosses in contrast to the Arthrodonteæ or jointed-toothed mosses. The jointed-toothed mosses have the teeth of the peristome crossed by very conspicuous bars or joints which are formed by the thickening of the cell walls of a single layer of cells. The mosses we have thus far taken up belong to the thread-toothed mosses, in which the teeth are not jointed and are derived from several concentric layers of cells. In Georgia the teeth are formed from the division of the whole cellular tissue of the interior of the lid, but in the Polytrichaceæ the teeth are formed from more clearly differentiated tissue. Each tooth consists of several layers of fine threads (hence the name, thread-toothed), held together by cellular material. In *Dawsonia* the threads are set free and form brush-like tufts of cilia. These structures are so fundamentally different from those in the jointed-toothed mosses that Arthrodonteæ and Nematodonteæ ought to stand as the great divisions instead of Acrocarpous and Pleurocarpous.

The Buxbaumias and their allies, the oddest and most curious of all our mosses, belongs with the thread-toothed mosses, according to most recent writers, but they are not very common and

we will refer our readers to Mrs. Britton's article in the March, 96, *Observer* for a full description accompanied by an excellent plate. Figs. 8-11 represent the most abundant member of this family, the sessile *Webera* (*Webera sessilis* (Schmid.) Lindb. *Diphyscium foliosum* Mohr.), which is easily recognized by the odd shaped capsules and is easily distinguished from *Buxbaumia* by its much greater number of leaves.

NEW OR RARE MOSSES.

II.—BRACHYTHECIUM CYRTOPHYLLUM Kindb.

BRACHYTHECIUM cyrtophyllum Kindb. is a very interesting moss closely allied to *B. acuminatum*, but much more slender, with much smaller leaves and broader, shorter leaf cells. Besides the type collection at Brighton, Ontario, by Prof. Macoun, it had previously been collected by Austin at Waterloo, N. Y., and the specimen in his herbarium was labeled *Hypnum* (*Brachythecium*) julaceum sp. nov. It was distributed in Austin's Musci Appalachiani No. 311, as *B. acuminatum*, var. *setosum*.

Since this it has been collected by Prof. Holzinger and probably by others, but never in fruit until Mr. Burnett collected it as recorded below. The capsules, however, do not differ materially from those from *B. acuminatum*, except that they are more slender. Besides this collection of the fertile plant, Mr. Burnett has several times collected it in a sterile condition.—*A. J. G.*

Riverside Park, on the Alleghany River ten miles north of Bradford, near the mouth of Tuna Creek, is an interesting locality for the botanist. The rich, deep alluvium of the broad valley is greatly broken by numerous creeks or bayous, which, in seasons of protracted drouth, leaves many stagnant pools. In August, 1896, I found some beautiful specimens of *Dichelyma pallescens* in one of these pools. In October, 1897, we had a season of low water, and in seeking to locate my *Dichelyma* I came upon an uprooted tree, reclining upon another tree at an angle of about thirty degrees. The tree was large, partially denuded of bark, and decidedly slippery, but the sight of the dainty little *Brachythecium* with its glossy red-brown cylindrical capsules was too tempting to resist. Selecting the fertile and leaving most of the sterile I filled my pockets with what proved to be *Brachythecium cyrtophyllum fertile*.—*D. A. Burnett, Bradford, McKean Co., Pa.*